

1 **IN THE CLAIMS**

2 This listing of claims will replace all prior versions and listings of claims in this
3 application.

4
5 **1. (Original)** An apparatus for a mass spectrometer, wherein said apparatus comprises: at least
6 one pair of conducting rods; at least one capping electrode; means for applying voltages to said
7 conducting rods; and means for applying voltages to said capping electrodes; wherein said
8 conducting rods are aligned in parallel, wherein said at least one capping electrode bounds said
9 conducting rods, and wherein said at least one capping electrode comprises at least one opening.

10
11 **2. (Original)** An apparatus according to claim 1, wherein said at least one capping electrode
12 comprises a plurality of openings.

13
14 **3. (Original)** An apparatus according to claim 2, wherein at least one of said openings accepts
15 sample ions.

16
17 **4. (Original)** An apparatus according to claim 2, wherein at least one of said openings provides
18 access through said ion guide for a laser beam to ionize a sample material.

19
20 **5. (Original)** An apparatus according to claim 1, wherein said ion guide focuses sample ions.

21
22 **6. (Original)** An apparatus according to claim 1, wherein said apparatus traps sample ions
23 therein for ion selection.

1 7. **(Original)** An apparatus according to claim 1, wherein said apparatus traps sample ions
2 therein for ion fragmentation.

3
4 8. **(Original)** An apparatus according to claim 1, wherein each said conducting rod is
5 positioned equidistant from a vertical axis.

6
7 9. **(Original)** An apparatus according to claim 1, wherein said apparatus transfers sample ions
8 from an ionization region to a mass analysis region.

9
10 10. **(Currently Amended)** An apparatus according to claim 9, wherein said mass analysis
11 region comprises a ~~time-of-flight~~ mass analyzer.

12
13 11. **(Currently Amended)** An apparatus according to claim ~~[[9]]~~ 10, wherein said mass
14 analysis region comprises a mass analyzer selected from the group consisting of a time-of-flight
15 mass analyzer, a quadrupole mass analyzer a quadrupole ion trap mass analyzer, a Fourier
16 transform ion cyclotron resonance mass analyzer nad an ion mobility mass analyzer.

17
18 12. – 14 **(Cancelled)**

19
20 15. **(Original)** An apparatus according to claim 9, wherein said ionization region comprises an
21 ion production means.

22

1 **16. (Currently Amended)** An apparatus according to claim 15, wherein said ion production
2 means is selected from the group consisting of atmospheric pressure chemical ionization,
3 electrospray ionization, matrix-assisted laser desorption/ionization, secondary ionization and fast
4 atom bombardment.

5
6 **17. -20. (Cancelled)**

7
8 **21. (Original)** An apparatus for analyzing chemical species, wherein said apparatus comprises:
9 at least one ion production region; an ion guide, said ion guide having a plurality of conducting
10 electrodes and at least one capping electrode; means for applying voltages to said ion guide; a
11 plurality of vacuum stages; and an analysis region; wherein said ion guide accepts sample ions
12 from any said ion production region, and wherein said ion guide transfers said sample ions to
13 said analysis region.

14
15 **22. (Original)** An apparatus according to claim 21, wherein at least one of said capping
16 electrodes comprises at least one opening.

17
18 **23. (Original)** An apparatus according to claim 22, wherein at least one of said openings accepts
19 said sample ions from at least one said ionization region.

20
21 **24. (Original)** An apparatus according to claim 22, wherein at least one of said openings provides
22 access through said ion guide for a laser beam to ionize a sample material.

1 25. **(Original)** An apparatus according to claim 21, wherein said ion guide focuses sample ions.

2
3 26. **(Original)** An apparatus according to claim 21, wherein said ion guide traps sample ions
4 therein for ion selection.

5
6 27. **(Original)** An apparatus according to claim 21, wherein said ion guide traps sample ions
7 therein for ion fragmentation.

8
9 28. **(Original)** An apparatus according to claim 21, wherein each said conducting rod is
10 positioned equidistant from a vertical axis.

11
12 29. **(Currently Amended)** An apparatus according to claim 21, wherein said analysis region
13 comprises a ~~time-of-flight~~ mass analyzer.

14
15 30. **(Currently Amended)** An apparatus according to claim [[21]] 29, wherein said analysis
16 ~~region comprises~~ mass analyzer is selected from the group consisting of an ion mobility
17 analyzer, a time-of-flight mass analyzer, a quadrupole mass analyzer, a quadrupole ion trap mass
18 analyzer, and a Fourier transform ion cyclotron resonance mass analyzer.

19
20 31. – 33. **(Cancelled)**

21
22 34. **(Original)** An apparatus according to claim 21, wherein said ion production region
23 comprises an ion production means.

1 35. **(Currently Amended)** An apparatus according to claim ~~21~~ 34, wherein said ion
2 production means is selected from the group consisting of electrospray ionization, atmospheric
3 pressure chemical ionization, matrix assisted laser desorption/ionization, glow discharge,
4 secondary ionization and fast atom bombardment.

5
6 36 .- 40. **(Cancelled)**

7
8 41. **(Original)** A method for analyzing chemical species in a mass spectrometer comprising an
9 ion production means, at least one multipole ion guide, a vacuum system, and a mass analyzer,
10 said method comprising the steps of: (a) producing ions in an ion production region; (b)
11 introducing said ions into an ion guide, said ion guide comprising a plurality of conducting rods
12 and at least one capping electrode; (c) applying a first potential to said conducting rods such that
13 said ions move to a central axis of said ion guide; (d) transferring said ions from said ion guide
14 into a mass analysis region; and (e) conducting mass analysis of said ions.

15
16 42. **(Original)** A method according to claim 41, wherein said ions are produced from a plurality
17 of said ion production means.

18
19 43. **(Original)** A method according to claim 41, wherein gas phase chemical reactions occur
20 within the ion guide.

21
22 44. **(Original)** A method according to claim 41, wherein ion selection occurs within said ion
23 guide.

1 45. **(Original)** A method according to claim 41, wherein ion fragmentation occurs within said
2 ion guide.

3
4 46. **(Original)** A method according to claim 41, wherein said ions are transferred from said ion
5 guide into a second ion guide before entering said mass analysis region.

6
7 47. **(Original)** A method according to claim 41, wherein said method further comprises the step
8 of: (d) applying a second potential to said capping electrode to create an electric field to trap said
9 ions within said ion guide.

10
11 48. **(New)** A method according to claim 41, wherein said capping electrode is an electrode
12 rod.

13
14 49. **(New)** A method according to claim 41, wherein said capping electrode is an electrode
15 plate.

16
17 50. **(New)** An apparatus according to claim 21, wherein said capping electrode is an
18 electrode rod.

19
20 51. **(New)** An apparatus according to claim 21, wherein said capping electrode is an
21 electrode plate.

22

1 52. **(New)** An apparatus according to claim 1, wherein said capping electrode is an electrode
2 rod.

3

4 53. **(New)** An apparatus according to claim 1, wherein said capping electrode is an electrode
5 plate.

6